

Claims

1. A shrink film comprising a polyethylene film,
characterized in that said polyethylene is an ethylene
5 copolymer mixture having a molecular weight distribution
in the range 10 to 35, a density of 915 to 940 kg/m³, a
weight average molecular weight of at least 100000 D and
an MFR_{2.16} (190°C) of 0.1 to 0.9 kg/m³, which copolymer
10 mixture is produced by a two or more stage
copolymerization of ethylene and 2 to 10% mole (relative
to ethylene) of a C₃₋₁₂ alpha-olefin comonomer in a series
of reactors including at least one slurry loop reactor
and at least one gas phase reactor using a heterogeneous
Ziegler-Natta catalyst.
- 15 2. A shrink film as claimed in claim 1 wherein the
molecular weight of the copolymer is 150000 to 300000D.
3. A shrink film as claimed in claim 1 wherein the
20 molecular weight of the copolymer is at least 226,000 D.
4. A shrink film as claimed in any one of claims 1 to
3 wherein the MWD of the copolymer is between 15 and 23.
- 25 5. A shrink film as claimed in any one of claims 1 to
4 wherein said copolymer is bimodal and comprises a
lower molecular weight component and a higher molecular
weight component.
- 30 6. A shrink film as claimed in any one of claims 1 to
5 wherein said copolymer comprises a lower molecular
weight component and a higher molecular weight component
both formed from an ethylene/butene copolymer.
- 35 7. A shrink film as claimed in any one of claims 1 to
6 wherein the density of the lower molecular weight
component is at least 945 kg/m³.

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8. A shrink film as claimed in any one of claims 1 to 7 wherein the MFR₂ of the copolymer is 0.15 to 0.6 g/10min.
- 5 9. A shrink film as claimed in any one of claims 1 to 8 wherein the value of a films' dart drop (g)/thickness (μm) is at least 4.5.
- 10 10. A shrink film as claimed in any one of claims 1 to 9 wherein said film has a thickness of 20 to 120 μm .
11. A shrink film as claimed in any one of claims 1 to 10 wherein said shrink film is a multilayer film.
- 15 12. A shrink film as claimed in any one of claims 1 to 10 wherein said shrink film is unilamellar.
13. A shrink film as claimed in claim 12 having a thickness of 100 to 200 μm .
- 20 14. Use of polyethylene film comprising an ethylene copolymer mixture having a molecular weight distribution in the range 10 to 35, a density of 915 to 940 kg/m³, a weight average molecular weight of at least 100000 D and an MFR_{2,16} (190°C) of 0.1 to 0.9 kg/m³, which copolymer mixture is produced by a two or more stage
- 25 copolymerization of ethylene and 2 to 10% mole (relative to ethylene) of a C₃₋₁₂ alpha-olefin comonomer in a series of reactors including at least one slurry loop reactor and at least one gas phase reactor using a heterogeneous
- 30 Ziegler-Natta catalyst in the manufacture of a shrink film.
- 35 15. A process for wrapping an object comprising applying a shrink film about said object and shrinking said film by the application of heat thereto, characterized in that said film is a shrink film

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according to claim 1 to 13.

16. An object shrink wrapped with a shrink film according to claim 1 to 13.

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17. A polyolefin shrink film having a Dart drop value (g)/film thickness (μm) of 5 g/ μm or more.

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18. The shrink film of claim 17 comprising an ethylene copolymer/copolymer mixture.

19. The shrink film of claim 17 or 18 wherein the film is unilamellar.

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20. The shrink film of claim 17 to 19 wherein Dart drop value (g)/film thickness (μm) is 6 g/ μm or more.